



# The impact of conditional cash transfers on public education expenditures: A political economy approach



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## ABSTRACT

We investigate the impact of conditional cash transfers (CCT) on the level of public education expenditures chosen by majority voting. In our model, parents may send their children to work, instead of sending them to (public or private) school. CCT may affect the choice of tax rate by altering the identity and/or the income level of the pivotal voter. Our simulation results explain the increase in education expenditures observed in Mexico and Brazil following the implementation of CCT programs. In Colombia, the pivotal voter is not eligible for the CCT program, which led to the relative stability in education expenditures per student.

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## 1. Introduction

Conditional cash transfer (CCT) programs were implemented in several developing countries during the 1990s. Under these programs, low-income households receive a cash transfer if their children attend school. Apart from alleviating poverty in the short term, these programs are intended to provide long-lasting benefits by raising children's human capital.

While CCT programs have been shown to increase school enrollment,<sup>1</sup> critics emphasize that the effects in terms of human capital are dubious (e.g., Reimers et al., 2006). Public school quality is typically very low in developing countries (Lockheed and Verspoor, 1991; Hanushek, 1995; Glewwe, 1999). In addition, the pressure over existing resources could increase as a result of larger enrollment, worsening public education quality.

A missing element in this debate is the effect that CCT programs may have on the political economy of public school expenditures. When they increase the pivotal voter's available income, CCT programs may lead to the choice of a larger tax rate to finance education, under the assumption that education is a normal good. If they alter public school enrollment, CCT programs may also change the identity of the pivotal voter, affecting the resulting choice of tax rate.

In this paper, we investigate the impact of CCT transfers on the level of public education expenditures chosen by majority voting. Our benchmark model is Gutierrez and Tanaka (2009), which extends Epple and Romano's (1996) model by accounting

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<sup>1</sup> There is a growing literature on the evaluation of conditional cash transfer programs, which includes Attanasio et al. (2005), Baird et al. (2011), Barrera-Osorio et al. (2011), Behrman et al. (2005), Bursztyn and Coffman (2012), Coady and Parker (2004), de Brauw and Hodinott (2011), Dubois et al. (2012), Ferreira et al. (2009), Maluccio and Flores (2005), Schady and Araujo (2006), Schultz (2004), Skoufias and Parker (2001), Souza and Cardoso (2009), and Todd and Wolpin (2006).

for the possibility that parents may send their children to work, instead of to (public or private) school. We first present the theoretical framework and discuss the main mechanisms through which CCT transfers may affect the choice of education expenditures. Since the final impact on education expenditures per student cannot be a priori determined, we calibrate the model using Brazilian, Colombian, and Mexican data for the year previous to the implementation of the respective CCT programs. We then simulate the impact of different CCT transfer levels on education expenditures and enrollment. By contrasting the results obtained in the simulation with the actual evolution of education expenditures and enrollment, we are also able to test our model predictions.<sup>2</sup>

In the model, all the households have the same preferences regarding education and private consumption. However, families are heterogeneous with respect to their income. While education increases their utility, there is an opportunity cost associated to schooling. The latter may be related to foregone child labor earnings or to other indirect costs, such as material and transportation. These costs lead poor households to keep their children out of school. In contrast, rich households may prefer to send their children to higher quality private, instead of public schools, depending on the level of public school expenditures.

The key element in the model is that once a household is not attending a public school, it has no incentives to support public education expenditures. Indeed, its utility level is not affected by public school quality.<sup>3</sup> As shown by *Gutierrez and Tanaka (2009)*, when some children are out of school and others are in private schools, an ends-against-the-middle equilibrium is always obtained. However, the identity of the pivotal voter will differ depending on whether the preferred tax–expenditure bundle is increasing or decreasing in voters' income. After calibrating the model, our simulation results show that the assumption of a preferred tax–expenditure bundle increasing in income is consistent with data from Brazil, Colombia, and Mexico.<sup>4</sup> This seems to be confirmed by most empirical studies (*Epple and Romano, 1996*).

Under relevant parameters, the tax rate chosen by the pivotal voter in Brazil and Mexico is always increasing in the benefit level distributed by the CCT program. In both countries, the pivotal voter is eligible for the CCT program and an increased transfer leads to the choice of a higher tax rate due to the income effect. Moreover, when education expenditures per student increase, private school enrollment declines. Consequently, the pivotal voter is characterized by a higher income and, therefore, chooses a higher tax rate.

Apart from a slight initial decrease in education expenditures per student caused by the decline in the number of children out of school, the trend is reversed for larger benefit values. Indeed, the higher tax rate largely compensates for any further increase in public school enrollment. When we consider the actual values distributed by the CCT program in Brazil and Mexico, we show that the model predicts quite well the increases in education expenditures per student (in real terms) that occurred in the two countries in the three years following the implementation of the program.<sup>5</sup> In contrast, our model overestimates the impact of the CCT programs in terms of enrollment. This is not surprising since not all eligible households actually take up the benefit. When we redo the simulation for Mexico considering that the impact on children out of school was zero, our results match the data much better.

The main difference in the Colombian setting is that the CCT program's coverage is much more restricted. As a consequence, the pivotal voter is not eligible for the CCT program. In such a context, the introduction of the CCT program has a negative impact on public education expenditures per student for any value of the transfer. This leads to an increase in private enrollment and, therefore, to a relatively poorer pivotal voter. Thus, the equilibrium tax rate gets smaller and the negative impact on education expenditures per student is even more severe. Once full school enrollment is attained, the model predicts that the level of public school enrollment, per student education expenditures, and the tax rate should remain pretty constant. Confronting the model with actual data, we are able to explain the relative stability in education expenditures (in real terms) observed in Colombia over the period 2002–2005.

Our results have a number of policy implications. As highlighted by previous literature (e.g., *de Janvry and Sadoulet, 2006*), CCT programs have fallen short of generating full enrollment in the countries where they have been implemented. Our simulations suggest that this is due less to the benefit level than to the current number of households receiving the transfer. More importantly, we show that while a relatively low transfer may reduce education expenditures per student, a more generous benefit may actually increase the level of education expenditure per student. However, this only happens if the program's coverage is large enough, so that the decisive voter is a program beneficiary. Thus, reducing targeting and instead distributing the benefit to even relatively richer households can, in principle, minimize the reduction in education quality due to increased demand for public education following the introduction of a CCT program.<sup>6</sup>

<sup>2</sup> See *Todd and Wolpin (2008)* for a discussion on methods to perform ex ante evaluation of social programs, which includes an interesting application to conditional cash transfer programs.

<sup>3</sup> The idea that households not benefiting from a publicly provided good may vote for low expenditures has been extensively explored in models combining public and private provision. The seminal paper is *Stiglitz (1974)*, followed by *Epple and Romano (1996)*, *Glomm and Ravikumar (1998)*, *Hoyt and Lee (1998)*, *Chen and West (2000)*, *Cohen-Zada and Justman (2003)*, *Tanaka (2003)*, and *Cattaneo and Wolter (2009)*, among others.

<sup>4</sup> Since the price elasticity of the demand for public education in Mexico is close to one, the assumption that the preferred tax–expenditure bundle is decreasing in income would, in principle, also be valid. However, additional simulation results presented in the paper seem to indicate that a preferred tax–expenditure increasing in income fits the data better.

<sup>5</sup> The only exception is the decrease in public education expenditures observed in Brazil in 2003.

<sup>6</sup> As pointed out by an anonymous referee, this does not necessarily imply that welfare is higher with large public education expenditures and a less targeted CCT program as compared to an equilibrium with the same total budget, but lower public education expenditures and a more targeted CCT program distributing larger transfers. A full welfare analysis is beyond the scope of this paper, but would certainly constitute an interesting extension to this work.

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